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Modification of germ plasm.—In connection with the twenty-fifth anniversary celebration of the Missouri Botanical Garden, MACDOUGAL[21] has published an account of the work done at the Desert Laboratory of the Carnegie Institute in experimental modification of germ plasm. It is directed against the old conception of "an inviolable germ plasm," in the interest of the conception that germ plasm is a responsive structure, with its chemistry and physics. At the Desert Laboratory over 200 species of seed plants, selected for their suitability and promise of response, have been included in the cultures, subjected to various conditions (mountain top, desert, and seashore). Less than 80 of these have survived, and about 20 continued in all three habitats. The notable feature in the behavior of these plants in unaccustomed habitats is the variation in sexual reproduction and seed formation. A second method of experimentation has been to use "inciting agents" applied directly to the reproductive bodies. In this kind of experimental work the forms chiefly used at the Desert Laboratory were certain cacti, *Penstemon Wrightii*, and an undescribed species of *Scrophularia*, the results reported in the paper being chiefly obtained from the last form. The paper concludes with a condensed statement of the conditions involved in any experimental work upon the germ plasm.—J. M. C.

Bacterial diseases of plants.—SMITH,[22] in a paper presented at the twenty-fifth anniversary celebration of the Missouri Botanical Garden, has summarized our present knowledge in reference to the bacterial diseases of plants, all of which has come within a generation. It is an interesting historical fact that our first knowledge of such diseases was the announcement by BURRILL in 1878 that pear blight is a bacterial disease. SMITH states that he is now ready to venture the sweeping statement that eventually a bacterial disease will be found in every family of plants, from the lowest to the highest. At present such diseases are known to occur in 140 genera, representing more than 50 families. The paper includes a list of the families of seed plants, those in which bacterial diseases have been found being indicated. There is also discussion of the following interesting topics: period of greatest susceptibility; what governs infection; how the infection occurs; time between infection and appearance of the disease; recovery from disease; agents of transmission; extra-vegetal habitat of the parasites; action of the parasites on the host; the reaction of the host; prevalence and geographic distribution; and methods of control.—J. M. C.

Stem anatomy of Isoetes.—LANG has begun an investigation of *Isoetes*, whose problems, as he remarks, remain difficult and fascinating. The first paper[23] deals with the morphological nature of the so-called stem, which he calls "stock," the reason being that one of the questions is whether this tuberous axis represents only a short stem. After a presentation of the anatomical details, LANG concludes that the stock consists of an upwardly growing shoot region, and a downwardly growing region giving rise to the roots; the latter region he calls the rhizophore. He suggests that the origin of the rhizophore may hold some relation to the deep-seated secondary meristem at the base of the shoot, but that, once initiated, "the growing region of the rhizophore behaves like the primary axis which is congenitally sunken and inclosed." This region, it seems, is very suggestive of the basal root-bearing region of *Lepidodendron* and its allies, and confirms WILLIAMSON'S suggestion that *Isoetes* may be the nearest living representative of that paleozoic stock.—J. M. C.

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[21] MACDOUGAL, D. T., The experimental modification of germ plasm. Annals Mo. Bot. Gard. 2:253–274. *figs. 4.* 1915.

[22] SMITH, ERWIN F., A conspectus of bacterial diseases of plants. Annals Mo. Bot. Gard. 2:377–401. 1915.

Phylogeny of the Ascomycetes.—ATKINSON,[24] in a paper presented at the twenty-fifth anniversary celebration of the Missouri Botanical Garden, discusses at length the vexed question of the origin of the Ascomycetes and their interrelationships. In general his thesis is that the Ascomycetes have been derived from the Phycomycetes, rather than from the red algae, the possible transitions being suggested most strikingly by such a form as *Dipodascus*. The details of the argument are too numerous to cite here, but it is well sustained, and more convincing than any argument hitherto favoring the algal origin of the group. A chart presents in graphic form the conclusions as to interrelationships, the Protoascomycetes arising from the Phycomycetes, and in turn giving rise to the Euascomycetes through the *Dipodascus* "stock." The divergent lines of the Euascomycetes are represented as emerging from two primitive overlapping stocks (*Gymnoascus* and *Monascus*). The paper is a very important contribution to our knowledge of a perplexing group.—J. M. C.

Cecidology.—One of the latest American papers on cecidia is by FELT,[25] in which the author describes a very large number of species of midges, many of which cause galls, while others are more or less closely associated with galls. Although this paper is primarily entomological, it contains many descriptions of galls which are of value to the botanist.

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[23] LANG, WILLIAM H., Studies in the morphology of *Isoetes*. I. The general morphology of the stock of *Isoetes lacustris*. Mem. and Proc. Manchester Lit. and Phil. Soc. **59**: no. 3. pp. 28. 1915.

[24] ATKINSON, GEO. F., Phylogeny and relationships in the Ascomycetes. Annals Mo. Bot. Gard. **2**:315–376. *figs. 10.* 1915.

[25] FELT, E. P., A study of gall midges II. Itonidinae. Rep. N.Y. State Entomol. 1913. pp. 79–211.